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Concurrent Omental infarction and Acute Appendicitis in an 11-Year-Old Child

1)Dr Muralikrishnan KT, 2)Dr Nafiya, 3)Dr Gopi VK, 4)Dr Krishnan Puthusseri, 6)Dr Neethu V

1)Senior Consultant-Department of pediatric surgery, Baby Memorial hospital calicut , Kerala-India.
2)Medical officer- Department of pediatric surgery, Baby Memorial hospital calicut, kerala-India.
3)Senior Consultant and HOD-Department of pediatric surgery, Baby Memorial Hospital, Calicut, Kerala-India.
4)Senior Consultant and HOD- Department of Radiology,Baby Memorial Hospital, Calicut, Kerala-India.
5)Consultant -Department of Pathology , Baby Memorial Hospital, Calicut, Kerala-India.

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I. INTRODUCTION

Acute abdominal pain in children is a common presentation to the emergency department, with acute appendicitis being the leading surgical etiology in children and adolescents. in contrast , Primary omental infarction , resulting from the vascular compromise of the greater omentum is a rare and often underdiagnosed cause of acute abdominal pain, particularly in the pediatric population. It can mimic appendicitis due to overlapping featuressuch as right sided abdominal pain and elevated inflammatory markers, leading to a diagnostic dilemma. We present a rare case, where both conditions coexisted in an 11 year old male child where imaging findings guided surgical intervention and diagnostic laparoscopy provided definitive diagnosis and treatment.

II. CASE PRESENTATIONS:

A 11 year old previously healthy child presented to the emergency department with a 2 days history ofright sided abdominal pain. The pain was localized to the right lower quadrant and was non-radiating. There were no associated symptoms such as fever, vomiting, diarrhea or constipation. There was no history of trauma or recent infection. On physical examination, the patient was afebrile, hemodynamically stable, and had localized tenderness in the right lower quadrant with mild guarding and no rebound tenderness. Laboratory investigations revealed a mildly elevated CRP and normal leucocytic count. USG abdomen was inconclusive -the appendix was not visualized, no free fluid or masses were identified. Due to persistent localized pain and diagnostic uncertainty, a contrast enhanced CT was done which revealed a fat density lesion with peripheral rim of hyperdensity measuring 12.8 x 11.8 mm anterior to transverse colon - likely omental infarct (fig:1).

In view of sustained pain and imaging findings, the patient was taken up for diagnostic laparoscopy. Intraoperatively, a well demarcated blackish necrotic segment of omentum , approximately 1.5 x 2 cm was identified in the right upper quadrant ,tethered to the falciform ligament (fig:2). Incidentally the appendix appeared inflamed (fig:3). A laparoscopic segmental omentectomy was performed to excise the infarcted omentum along with laparoscopic appendicectomy. The postoperative recovery was uneventful. The patient resumed oral intake on post operative day 1 and was discharged on day 3. Histopathological examination of the omental tissue confirmed focal fat necrosis and hemorrhage, consistent with omental infarction (fig:4). The appendix showed acute suppurative inflammation, confirming acute appendicitis(5).

III. DISCUSSION :

Omental infarction is an uncommon entity, particularly in children, accounting for less than 0.1% of pediatric cases of acute abdomen(1). In most cases omental infarction is idiopathic (primary), but it can also be secondary to identifiable factors such as abdominal trauma, hypercoagulable states, vasculitis, obesity or prior surgical interventions. Primary omental infarction typically affects the right side of the omentum, possibly due to its larger size and relative mobility predisposing it to torsion or vascular compromise(2).

The clinical presentation mimics other

causes of acute abdomen, especially acute appendicitis, making preoperative diagnosis challenging. Ultrasonography, though useful, is often limited by operator dependency and difficulty in visualizing omental fat abnormalities. CECT is considered the gold standard for diagnosis, showing characteristic fat stranding and focal areas of fat attenuation. In this case, the child was previously healthy,with no knownpredisposing factors suggesting a primary omental infarction.

The coexistence of POI and acute appendicitis is exceptional. Literatures contain only a handful of such reported cases(3). In dual pathology , it's often uncertain whether one pathology precipitated the other(forexample,the local inflammation from appendicitis triggering omental vascular compromise) or they are coincidental. For this patient both lesions were clearly demarcated and anatomically distinct. There was no direct contiguity between the infarcted omentum and the inflamed appendix, suggesting that these were independent events rather than one being a consequence of the other.

The management of omental infarction remains controversial.Some published reports support conservative(non operative) management of isolated omental infarction when diagnosis is secure or surgical pathology is excluded(4). However when there is diagnostic uncertainty, significant pain, or there is possibility of complications, surgical management has benefits. Literature supports that surgical treatment leads to more rapid resolution of symptoms and shorter hospital stay(5,6).

In our case laparoscopy served both as a diagnostic and therapeutic tool, highlighting its utility in ambiguous pediatric abdominal pain. It allowed for direct visualization and resection of

the necrotic omental segment and inflamed appendix, preventing potential complications such as abscess formation , adhesion or peritonitis.

Histopathological analysis confirmed fat necrosis with hemorrhage, consistent with omental infarction, andinflammation of the appendix, confirming true acute appendicitis.This emphasizes the importance of histological evaluation, not only to confirm intraoperative findings but also to rule out rare neoplastic or infectious etiologies.

IV. CONCLUSIONS:

This case underscores the diagnostic complexity of acute abdominal pain in children. While omental infarction is an uncommon entity, it should be considered in the differential diagnosis, especially when imaging is atypical or inconclusive. The concurrent occurrence of omental infarction and acute appendicitis, although rare, necessitates a high index of suspicion. Laparoscopy remains a valuable tool, enabling accurate diagnosis and timely management,thereby improving patient outcomes.

FIGURES:

FIG 1:CECT ABDOMEN SHOWING FAT DENSITY LESION WITH PERIPHERAL RIM OF HYPERDENSITY

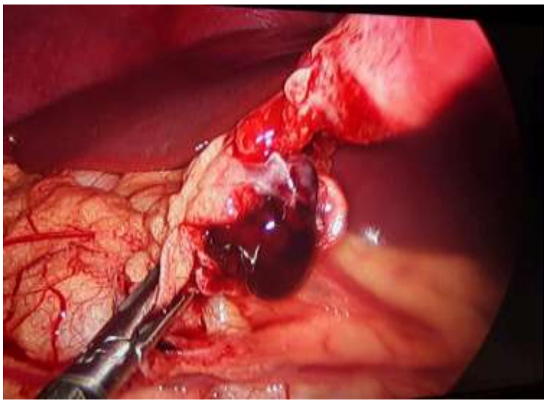

FIG 2:INTRAOPERATIVE FINDING - NECROTIC SEGMENT OF OMENTUM

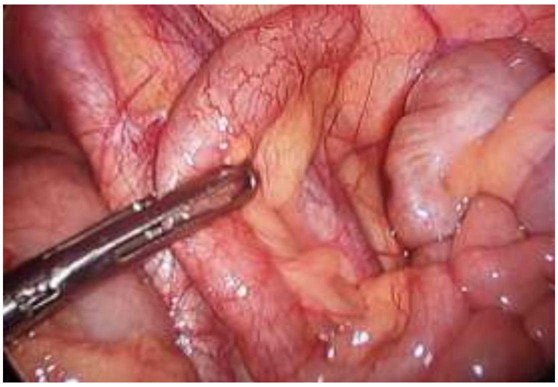

FIG 3:INTRAOPERATIVE FINDING-INFLAMMED APPENDIX

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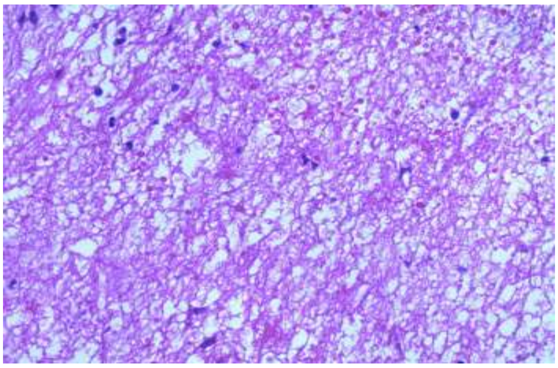

FIG 4:HPE SLIDES SHOWING AREAS OF INFARCT

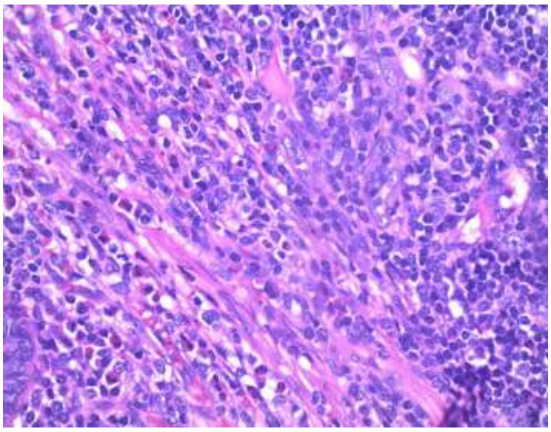

FIG 5: SECTION FROM APPENDIX SHOWING FOCAL NEUTROPHILIC AND EOSINOPHILIC INFILTRATES

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